

## Patent claims

1. The floor panel in the form of a rectangular plate which, at least at two opposite sides, is provided with coupling parts in the form of a tongue at the one side and a groove at the opposite side, wherein these parts are provided with integrated mechanical locking means in the form of a protrusion shaped on the tongue and a lip bordering the groove which is formed by the extraction of the material along the longer arm of the groove, wherein the bearing surface of the lip is inclined to the centre and downwards, **characterized in** that the bearing surface (9) of the lip (8) at the longer arm of the groove (5) is concave on the arc with the first radius ( $r_1$ ), the point of engagement of which is situated at the upper border of the panel (1), whereas the protrusion (7) of the groove (6) has, in cross-section, the form of a circular sector with the third radius ( $r_3$ ) which is shorter than the first radius, wherein the lower part of the lip (8) and at the lower part of the panel (1) from the side of the circular protrusion (7) have the second bearing surfaces (9') inclined in relation to the vertical plane into one direction, at the first acute angle ( $\alpha$ )
2. The floor panel according to claim 1, **characterized in** that the ratio of the third radius ( $r_3$ ) to the first radius ( $r_1$ ) is equal to about 1:3.
3. The floor panel according to claim 1, **characterized in** that the first angle ( $\alpha$ ) is equal to 30° approximately.
4. The floor panel according to claim 1, **characterized in** that the internal surface (10) of the recess along the longer arm of the groove, situated close to the lip (8), is concave on the arc with the second radius ( $r_2$ ), which is longer the first radius ( $r_1$ ).
5. The floor panel according to claim 4, **characterized in** that the ratio of the first radius ( $r_1$ ) to the second radius ( $r_2$ ) is equal to 1:1,5 approximately.
6. The floor panel according to claim 1, **characterized in** that it has at least one longitudinal groove (15) which is situated from the bottom of the panel.

7. The floor panel according to claim 1, **characterized in** that the bearing surface (9) of the lip (8), near the upper edge of the lip, turns into a flat surface, which is inclined in relation to the vertical plane at the second acute angle ( $\beta$ ), forming a nose (16).
8. The floor panel according to claim 7, **characterized in** that the second acute angle ( $\beta$ ) is equal to 15° approximately.
9. The floor panel according to claim 7, **characterized in** that the second internal surface (17) of the recess in the lower arm of the groove (5) is flat and inclined in relation to the horizontal plane at the third acute angle ( $\gamma$ ), wherein the second internal plane (17), near the groove (5), turns into an offset (18) whose surface is flat, inclined in relation to the vertical plane at the fourth acute angle ( $\delta$ ).
10. The floor panel according to claim 9, **characterized in** that the third acute angle ( $\gamma$ ) is equal to 20° approximately and the fourth acute angle ( $\delta$ ) is equal to 38° approximately.
11. The floor panel according to claim 1 or 9, **characterized in** that on the bearing surface (9) it is provided with a longitudinal recess shaped like a trough (19), in cross-section, the surface of which is concave on the arc of the third radius ( $r_3$ ) which is equal to the radius of the circular protrusion (7).
12. The floor panel according to claim 11, **characterized in** that the second internal surface (17) is flat and inclined in relation to the horizontal plane at the third acute angle ( $\gamma$ ) and that this surface, near the groove (5), turns into an offset (18) of flat surface inclined in relation to the vertical plane at the four acute angle ( $\delta$ ).
13. The floor panel according to claim 12, **characterized in** that the third acute angle ( $\gamma$ ) is equal to 20° approximately whereas the fourth acute angle ( $\delta$ ) is equal to 38° approximately.

14. The floor panel according to claim 1, **characterized in** that it is made of wood or wood derivative layerwise glued material.

15. The floor panel according to claim 1 or 7 or 9 or 11, **characterized in** that on the short sides at the one edge it is provided with a groove in the near-rectangular form, in cross-section, the lower arm of which is provided with a triangular recess (14) whereas at the opposite side it is provided with the second tongue (11) in the near-rectangular form, which is provided with the second protrusion (12) shaped like a triangle in its lower part.